Ordering number : EN1455C

Monolithic Linear IC

# LA7051

## Video, Audio Signal Processor for UHF Band RF Modulator

### Overview

The LA7051 is a video, audio signal processor IC for UHF band RF modulator. It performs the functions of audio FM modulator, video clamp circuit, white clip circuit.

### Applications

- VCRs.

### Features

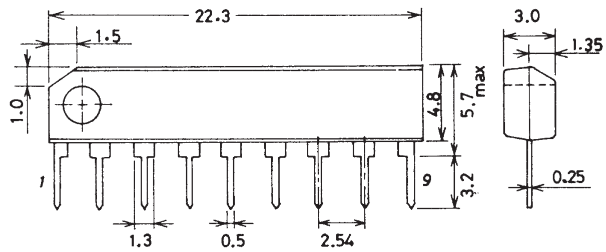
- 5.5MHz/6.0MHz audio modulation frequency selectable with control pin.
- Contains white clip circuit.
- Minimum number of external parts required.

### Package Dimensions

unit: mm

**3017C-SIP9**

[LA7051]




SANYO: SIP9

### Specifications

#### Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Maximum supply voltage | $V_{CC}$ max | V8 | 12 | V |
| Allowable power dissipation | Pd max | Ta≤60°C | 250 | mW |
| Operating temperature | Topr | | –20 to +85 | °C |
| Storage temperature | Tstg | | –55 to +125 | °C |

#### Operating Conditions at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Recommended supply voltage | $V_{CC}$ | V8 | 7.5 | V |
| Operating voltage range | $V_{CC}$ op | | 7.0 to 8.0 | V |

#### Operating Characteristics at Ta=25°C, $V_{CC}$ (V8)=7.5V

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| $V_{CC}$8 current drain | $I_{CC}$8 | | 9.5 | 14.5 | 19.5 | mA |
| Video clamp voltage | $V_{VC}$ | | 3.6 | 3.8 | 4.0 | V |
| Audio FM sensitivity | $\Delta f_{fm}6$ | $f_m$ : 1kHz, 4.5Vp-p input, $f_C$ : 5.5MHz | 900 | 1250 | 1600 | Hz/mV |
| | $\Delta f_{fm}7$ | $f_m$ : 1kHz, 4.5Vp-p input, $f_C$ : 5.5MHz, R* : 15kΩ | 900 | 1250 | 1600 | Hz/mV |
| Audio distortion | THD6 | At deviation width ±50kHz | | 1.6 | 2.5 | % |
| | THD7 | $f_m$ : 1kHz, $f_C$ : 5.5MHz | | 1.6 | 2.5 | % |
| Video clamp output amplitude deviation | | At 1Vp-p stair step signal input | –5 | | +5 | % |
| Audio output amplitude | $V_O6$ | $f_C$ : 5.5MHz | 0.79 | 1.0 | 1.26 | Vp-p |
| | $V_O7$ | | 0.79 | 1.0 | 1.26 | Vp-p |
| White clip level | $V_{WC}$ | At 1.5Vp-p stair step signal input | 1.100 | | 1.189 | Vp-p |

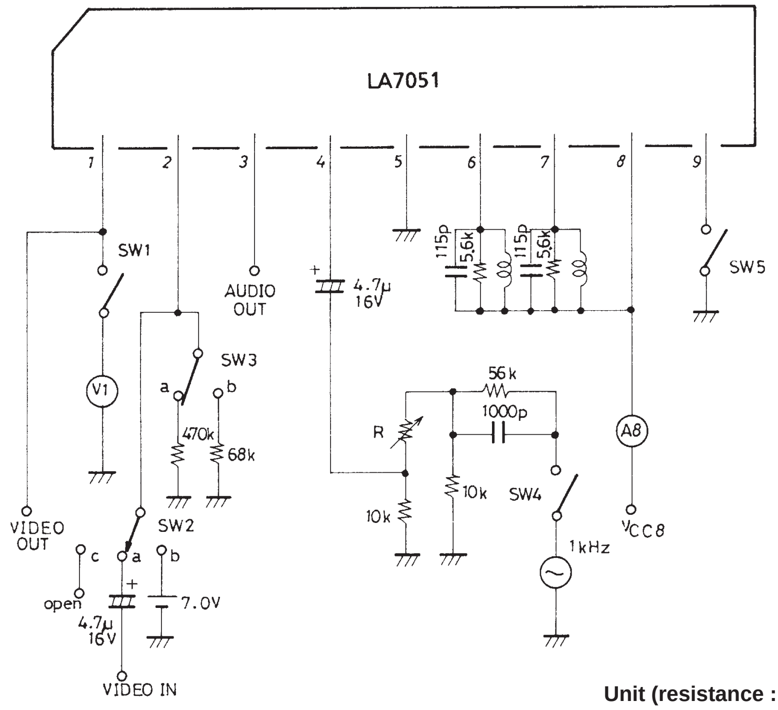
*Note : Resistance value of 50kΩ variable resistor in Test Circuit.


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## LA7051 Test Condition

| Parameter | Symbol | SW Mode | | | | | Test point | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | SW1 | SW2 | SW3 | SW4 | SW5 | | |
| $V_{CC}8$ current drain | $I_{CC}8$ | OFF | c | a | OFF | ON | Pin 8 | |
| Video clamp voltage | $V_{VC}$ | ON | c | a | OFF | OFF | Pin 1 | |
| Audio FM sensitivity | $\Delta f_{fm}6$ | OFF | c | a | ON | ON | Pin 3 | |
| | $\Delta f_{fm}7$ | OFF | c | a | ON | OFF | Pin 3 | |
| Audio distortion | THD6 | OFF | c | a | ON | ON | pin 3 | |
| | THD7 | OFF | c | a | ON | OFF | pin 3 | |
| Video clamp output amplitude deviation | | OFF | a | a | OFF | OFF | Pin 1 | |
| Audio output amplitude | $V_O6$ | OFF | c | a | OFF | ON | Pin 3 | |
| | $V_O7$ | OFF | c | a | OFF | OFF | pin 3 | |
| White clip level | $V_{WC}1$ | ON | b | a | OFF | OFF | Pin 1 | $V_{WC}=V_{WC}1–V_{WC}2$ |
| | $V_{WC}2$ | ON | c | b | OFF | OFF | Pin 1 | |

## Test Circuit




**Unit (resistance : Ω, Capacitance : F)**

## Equivalent Circuit Block Diagram

